

Report of Geologic Reconnaissance

**Danube Storage Facility
12410 Lakeside Avenue
Lakeside, CA 92040
MUP 08-002, ER 08-14-001**

Prepared by:



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ATTACHMENT: Site Photographs

1 INTRODUCTION

The County has prepared this report on behalf of the project applicant for the purpose of satisfying the requirement for a geologic reconnaissance of the site to address the potential of landslides or rockfall on the proposed development. According to a landslide hazard identification map developed by the California Department of Conservation, Division of Mines and Geology (DMG) in 1995, the site and slopes above the site are categorized as generally susceptible (Subarea 3-2) to landslides. The DMG mapped landslide susceptibility based on a scale from 1 to 4, with 4 being the most susceptible to landslides. Subarea 3-2 is described as follows: “Generally occupies steeper and higher slopes which are less stable and more susceptible to landslides and other slope failures. Most slopes in this subarea have angles exceeding 25 degrees and heights in excess of 250 feet. Debris flows and rockfalls may originate within Subarea 3-2 and flow/move downslope, sometimes at high enough speeds to catastrophically impact adjacent downslope land.”

The scope of work for this geologic reconnaissance included:

- Review of available published geologic maps relevant to the project area.
- Reconnaissance of the site on Wednesday, January 28, 2009 to evaluate geologic conditions apparent from surface features, including landslide and rockfall potential.
- Preparation of this report summarizing our observations and conclusions with respect to geologic conditions at the site.

2 LANDSLIDES/ROCKFALL ANALYSIS

The County Guidelines for Determining Significance – Geologic Hazards (County of San Diego, 2007) contains the following guidelines pertaining to landslides that if met, would be considered a significant impact as a result of project implementation:

- a. The project site would expose people or structures to substantial adverse effects, including the risk of loss, injury or death involving landslides.*
- b. The project is located on a geologic unit or soil that is unstable, or would become unstable as a result of the project, potentially resulting in an on- or off-site landslide.*
- c. The project lies directly below or on a known area subject to rockfall which could result in collapse of structures*

2.1 Site Location and Description

The project is located on 12410 Lakeside Avenue in the unincorporated community of Lakeside in San Diego County (Figure 1). The site is located at the mouth of a canyon and is currently developed with two one-story residential structures (and outbuildings) on gently to steeply sloping terrain. South facing slopes in excess of 35% in grade with sporadic outcrops of granitic rocks are located on the northern portion of the site which extends off-site to the north. Proposed development of a three-story self storage facility are planned at the base of the slope. Elevations at the site range from 407 feet above mean sea level (MSL) along Lakeside Avenue to 505 feet MSL on the slope in the northwest corner of the site. Offsite slopes to the north extend to nearly 700 feet MSL. Access to the property is provided by an unimproved driveway along Lakeside Avenue.

2.2 Site Geology

The site is located within the Peninsular Ranges Geomorphic Province of California. This province, which stretches from Los Angeles to the tip of Baja California, is characterized by a series of northwest trending mountain ranges separated by subparallel fault zones, and a coastal plain of subdued landforms.

The site is located at the base of Eucalyptus Hills, which are hillsides underlain by granitic rock covered by variable thicknesses of residual soil and colluvium. The regional geology is summarized on the Geologic Map on Figure 2 (USGS, 2004). Generalized descriptions of the geologic units observed at the site include:

Undifferentiated Granitic Rocks: Crystalline granitic rock of intermediate composition was observed as outcrops in sporadic locations on the slopes on and to the north of the site. Partially buried boulders mostly less than 5 to 6 feet in diameter were observed in sporadic locations on the slope north of the site (Photograph 1). Much of the slope appeared disturbed and showed evidence of former grading activities. The bottom of the slope has an artificial cut face in which residual soil and partially intact bedrock was observed (Photograph 2).

There were several graded paths on the slope in which it is speculated that loose boulders were pushed to the bottom of the slope as evidenced by loose boulders lying in a pile near the bottom of the slope. The majority of the remaining boulders which were not graded off the site's slopes appear to be partially buried, anchored surface outcrops, and/or their orientation would make the potential for rockfall and/or rolling boulders to impact the planned building pad area low. In observing the surrounding area, it is further speculated that boulders may have been taken offsite and used for rip-rap as seen underneath Highway 67 a few hundred yards from the site.

Colluvium and Residual Soil: Colluvium is an accumulation of transported residual soil and weathered formational material found on slopes. Colluvium forms as a result of gravitational, down-slope creep or sheet wash on slopes. Residual soil develops in place and is generally more exposed in flatter topography. The colluvium and residual soil are similar in appearance and were observed on the surface the slope. It generally consists of fine to coarse grained silty sand that varies from light brown to reddish brown in color. Since rock outcrops were observed in a few locations on the slope it is anticipated that the thickness of colluvium/residual soil on the slopes is generally shallow. Thicker deposits of colluvium were observed near and at the base of the slope in the northeast portion of the site.

Holocene Alluvial Deposits and Wash Deposits: The site is located at the base of a steep wash at the mouth of a canyon. Alluvial deposits located within the wash were observed. No flowing water was observed within the wash at the time of the site visit.

2.3 Evaluation of Geologic Hazards

2.3.1 Landslides and Rockfall

Area A: Evidence of a few loose rocks/boulders susceptible to falling/rolling downslope were observed during this site reconnaissance directly upslope or near the planned building pad area (Figure 3 and 4, Photograph 2). These boulders are located less than 100 feet above the planned building pad and appear to be remnant boulders from former grading activities at the site. Some of these boulders may require removal or stabilization which could be accomplished during grading of the site for development. Mitigation could be achieved by using standard grading equipment, and is feasible due to relatively easy access to susceptible boulders above the project pad area. Some of these boulders appear to be offsite on the parcel directly north of the site and may require permission from the neighboring property owner prior to removal/stabilization.

Area B: Other boulders/outcrops observed during our field visit (Figure 4) that could potentially affect the planned building pads appeared to be buried to a significant degree and not sitting directly on the ground surface, and/or irregularly shaped with their long axis perpendicular to the slope face. Based on the observed character of the granitic boulders and outcrops, the potential for rockfall to adversely affect the proposed building in these areas is less than significant.

Area C: Thicker deposits of colluvium were observed near the base of the slope in the northeast portion of the project site (Figure 4). Based on this observation, it is likely that

future gravitational downslope creep and/or sheet wash on the slope above the site will cause additional accumulations of colluvium at the base of the slope over time. Unless the slopes were to become completely denuded in the event of a fire or grading, debris flow from the slopes would not present a substantial risk to the planned building pad area at the site. In addition, based on review of aerial photographs and observations during the reconnaissance of the site, there is no evidence of substantial landslides that have occurred on the slopes above the proposed project.

2.3.2 Seismic Shaking

Seismic hazards affecting the site primarily consist of ground shaking during seismic events on regional active faults. The nearest known active fault is within the Rose Canyon Fault Zone which is located about 18 miles east of Lakeside. There are no known active faults in the area or projecting toward the site. The site is not located within an Alquist-Priolo Earthquake Fault Zone. In our opinion, the probability of surface rupture due to faulting is considered low. However, ground lurching and ground cracking as a result of a significant seismic event on a regional fault is a possibility.

2.4 Conclusions and Recommendations

Based on the results of this reconnaissance to evaluate the potential for landslides/rockfall, there is one area above the site which contains loose rocks/boulders which require mitigation. The rest of the steep slopes observed above the site do not show evidence of existing landslides or rockfall potential. The proposed building pad area is safe for human occupancy in its present location with regards to rockfall and landslide potential provided the hazardous rocks identified in “Area A” are addressed as recommended below:

Mitigation for Geologic Hazards: The Major Use Permit for this project will be conditioned as follows:

Intent: In order to avoid rockfall hazards that threaten the proposed building site, the boulders located in a hazardous position shall be removed.

Description of requirement: The boulders identified in “Area A” in the February 4, 2009 Report of Geologic Reconnaissance prepared by the Department of Planning and Use (DPLU) shall be removed/relocated as part of the grading of the site.

Documentation: A letter of certification shall be provided by a California Registered Professional Engineer or Certified Engineering Geologist to the DPLU Permit Compliance Coordinator, which states that the identified rockfall hazards at the site have been mitigated and any proposed buildings are safe from rockfall hazards. The certification letter shall be accompanied with photodocumentation of Area A before and after rock removal occurs.

Timing: The above certification letter shall be provided prior to approval of any building plans and issuance of any building permit.

Monitoring: The DPLU Permit Compliance Coordinator shall review the rockfall hazard certification report for compliance with this condition.

3 LIMITATIONS OF INVESTIGATION

The reconnaissance was performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable geotechnical consultants practicing in this or similar localities. No warranty, expressed or implied, is made as to the conclusions and professional opinions included in this report.

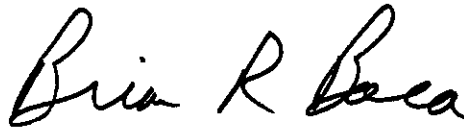
Changes in the condition of the property can occur with the passage of time, whether due to natural processes or the work of man on this or adjacent properties. In addition, changes in applicable standards of practice may occur from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, the report is subject to review and should not be relied upon after a period of three years. Other geotechnical considerations outside the narrow scope of this investigation may exist in development of the building pad area which was not evaluated as part of this report.



James J. Bennett

P.G. #7707 (Expires: 4/30/10)

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Chief, Engineering Geologist, Project Planning

4 REFERENCES

California Department of Conservation, Division of Mines and Geology (DMG), 1995. DMG Open File Report 95-03, El Cajon Quadrangle, Landslide Hazard Identification Map No. 33, Relative Landslide Susceptibility and Landslide Distribution Map, Plate 33C.

County of San Diego, Guidelines of Determining Significance and Report Format and Content Requirements, Geologic Hazards, July 30, 2007

United States Geological Survey, 2004. Open-File Report 2004-1361, Preliminary Map of the El Cajon 30'x60' Quadrangle, Southern California, Version 1.0, Compiled by Victoria R. Todd, Scale 1:100,000

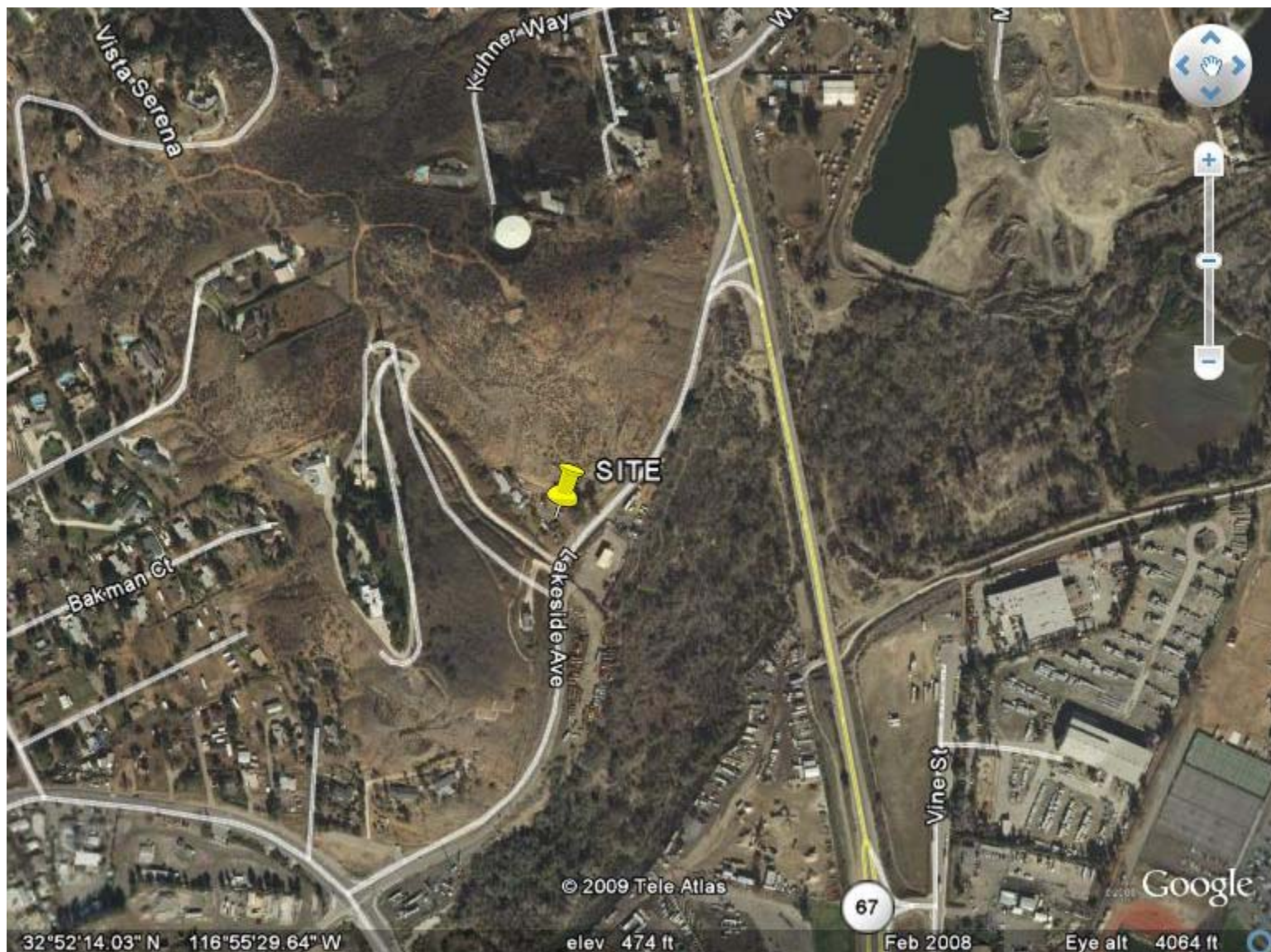
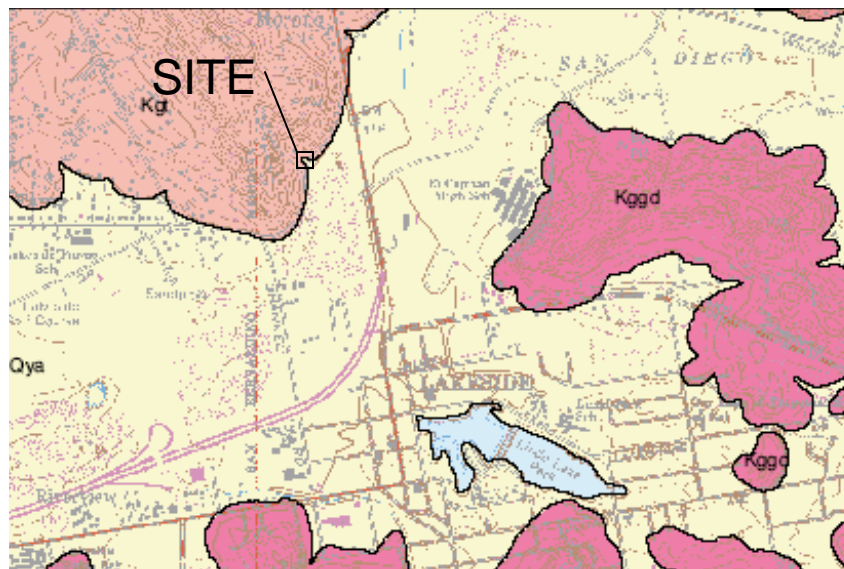


Figure 1

Regional Location Map

P08-002 Danube Self Storage



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Qya	Young alluvium
Kgt	Tonalite (Cretaceous)
Kggd	Granodiorite (Cretaceous)

Modified from: USGS, El Cajon 30x60 Quadrangle, Todd, 2004



Figure 2

Geologic Map

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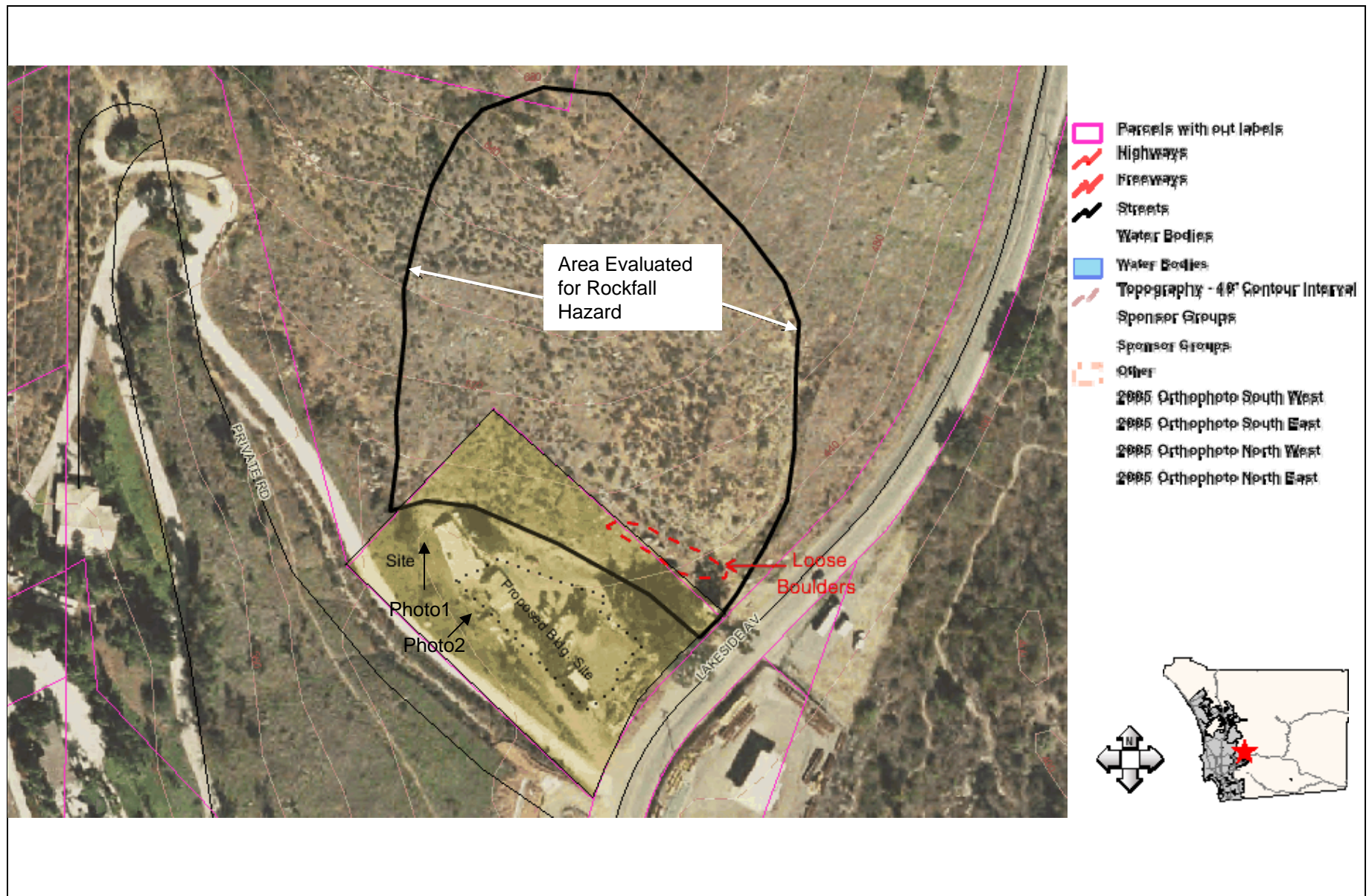
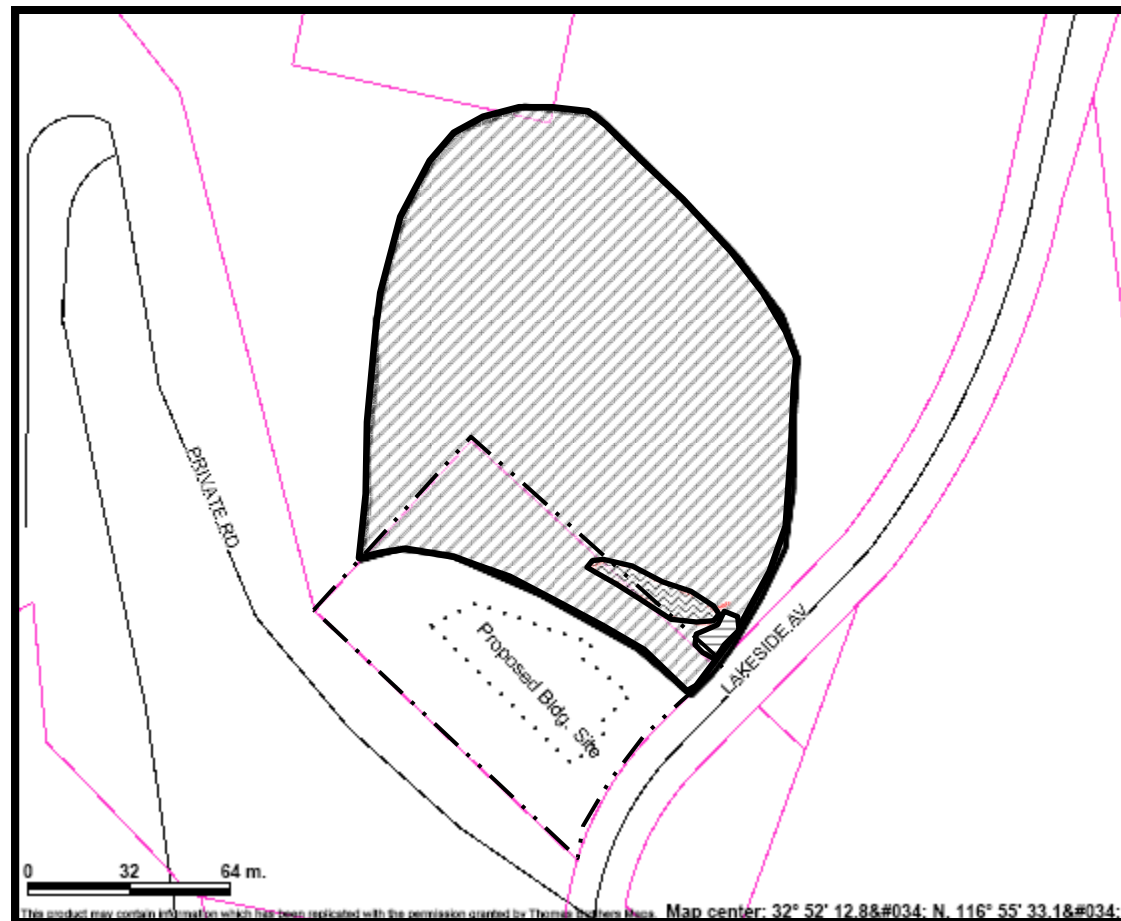


Figure 3

Site Map

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Area A



Area B



Area C



Project Boundary



Parcels with out labels



Highways



Freeways



Streets



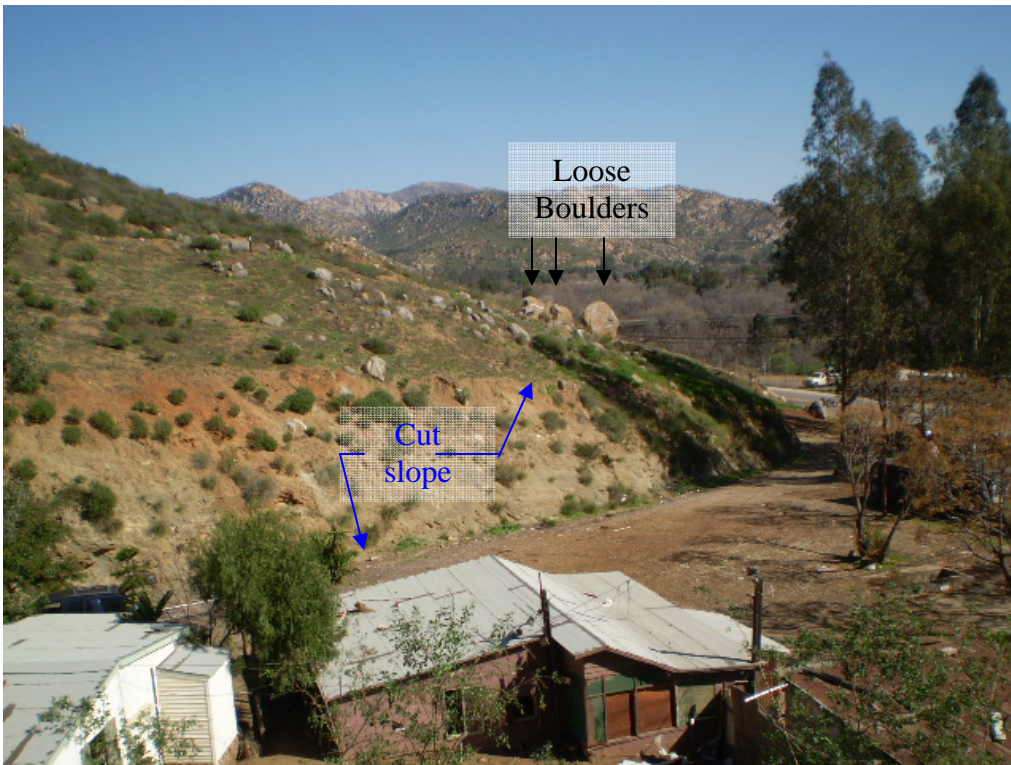
Figure 4

**Geologic Hazards Identified
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Photograph 1: View to the north of slope above site with existing site structure in the foreground.



Photograph 2: View to the northeast with the site and its existing structures in the foreground. Note cut slope and loose boulders.